A New Species of *Astragalus* (Fabaceae, Tribe Galegeae) from Iran

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ABSTRACT. A new *Astragalus* species (family Fabaceae) with a glabrous ovary and pod, loose inflorescence, and 3 to 5 leaflets is described and illustrated: *Astragalus joharchii*. It is endemic to the Khorassan province of eastern Iran. Morphological evidence (bifurcated trichome, long stem, connate stipules, few leaflets, short peduncle, campanulate calyx, non-inflated calyx in fruit) supports taxonomic placement in *Astragalus* sect. *Ammodendron*, and the species appears to be most closely related to *A. glabellus*, as they share a glabrous ovary, glabrous pod, number of leaflets, and peduncle length.

Key words: *Ammodendron*, *Astragalus joharchii*, Fabaceae, Iran.

Astragalus L. is a member of the legume family (Fabaceae) and is traditionally classified in the tribe Galegeae. This genus is the largest in Iran's flora, and its species are located throughout most areas of the country. Iran is considered a major center of diversity for *Astragalus*, having approximately 36% of the Old World species located within its boundaries (Maassoumi, 1998; Ghahreman et al., 2002). In this paper a new species within *Astragalus* sect. *Ammodendron* Bunge is described from Iran. This section was originally established in 1868 with 19 species, but now contains 61 species (based on Podlech & Zarre, 2003; Ghahremaninejad, 2004a, 2004b).

Astragalus sect. **Ammodendron** Bunge, Mém. Acad. Imp. Sci. Saint Pétersbourg 11, 16: 109, 1868. TYPE: *Astragalus ammodendron* Bunge (lectotype, designated by Podlech (1990: 464)).

The section belongs to *Astragalus* subg. *Cercidothrix* Bunge, which is characterized by perennial growth and the presence of bifurcate hairs (Bunge, 1868). A concise description of *A.* sect. *Ammodendron* Bunge follows:

Perennial, shrubs or semishrubs, vested with bifurcate hairs; stipules adnate to the petiole, connate; leaves imparipinnate; leaflets usually 1 to 3 pairs; bracteoles usually absent; inflorescence usually short-pedunculate; fruit calyx campanulate to cylindric-campanulate, non-inflated; corolla glabrous; pod stipitate or sessile, coriaceous, bilocular.

Astragalus joharchii F. Ghahremaninejad & J. F. Gaskin, sp. nov. TYPE: Iran. Khorassan Prov.: Torbat-e Jam, Pasgah-e Zakani, 680 m, 7 May 2002, *M. R. Joharchi 37246* (holotype, FAR; isotypes, FUMH, MO, MSB). Figures 1, 2.

Differt ab *A. glabello*: foliolis 6–25 × 4–9(10) (nec 4–14 × 2–4) mm; racemis 15–19 (nec 3–10)-floribus, 17–25 (nec 1–5) cm longis.

Perennial, at least 43 cm tall, vested with bifurcate hairs; stems 12–20 cm, hairs densely appressed white. *Stipules* 1–2.5 mm, adnate to the petiole, almost fully connate, membranous, white-hairy; *leaves* imparipinnate, both petiole and rachis densely canescent; petiole together with rachis 1.2–2.7 cm, persistent; leaves 3 to 5, leaflets oblong to oblong-elliptic, acute, 6–25 × 4–9(10) mm, moderately to densely appressed on the lower surface, almost glabrescent above; *inflorescence* 17–25 cm, loosely 15- to 19-flowered; *peduncles* 1–7 cm, covered densely with appressed white hairs; *bracts* triangular-lanceolate, 1–2 mm, sparsely covered with white hairs; *bracteoles* wanting; *pedicels* 1.5–2 mm, densely covered with white and black hairs. *Calyx* campanulate, 9–9.5 mm, not inflated in fruit, finally ruptured by the fruit, covered with appressed white, long (1–1.5 mm) asymmetrical hairs and few black hairs; calyx teeth 1.5–2 mm, ¼ as long as the tube; *corolla* drying yellow to violet, glabrous; standard 16–17 mm, the limb rounded-elliptic at the apex, scarcely retuse, 6 mm wide, without distinct claw; wing 14–15 mm long, the limb oblong to oblong-elliptic, 6–6.5 × 1.7–2 mm, the auricle 1 × 0.9 mm; keel 11.5–12 mm long, the limb 4–4.5 × 2–2.2 mm, the auricle 0.6 × 0.6 mm; *ovaries* stipitate, 4.5–5 mm, glabrous; style 8 mm, glabrous; *stamens* 13–13.2 mm, the free portion 4–4.5 mm; anther

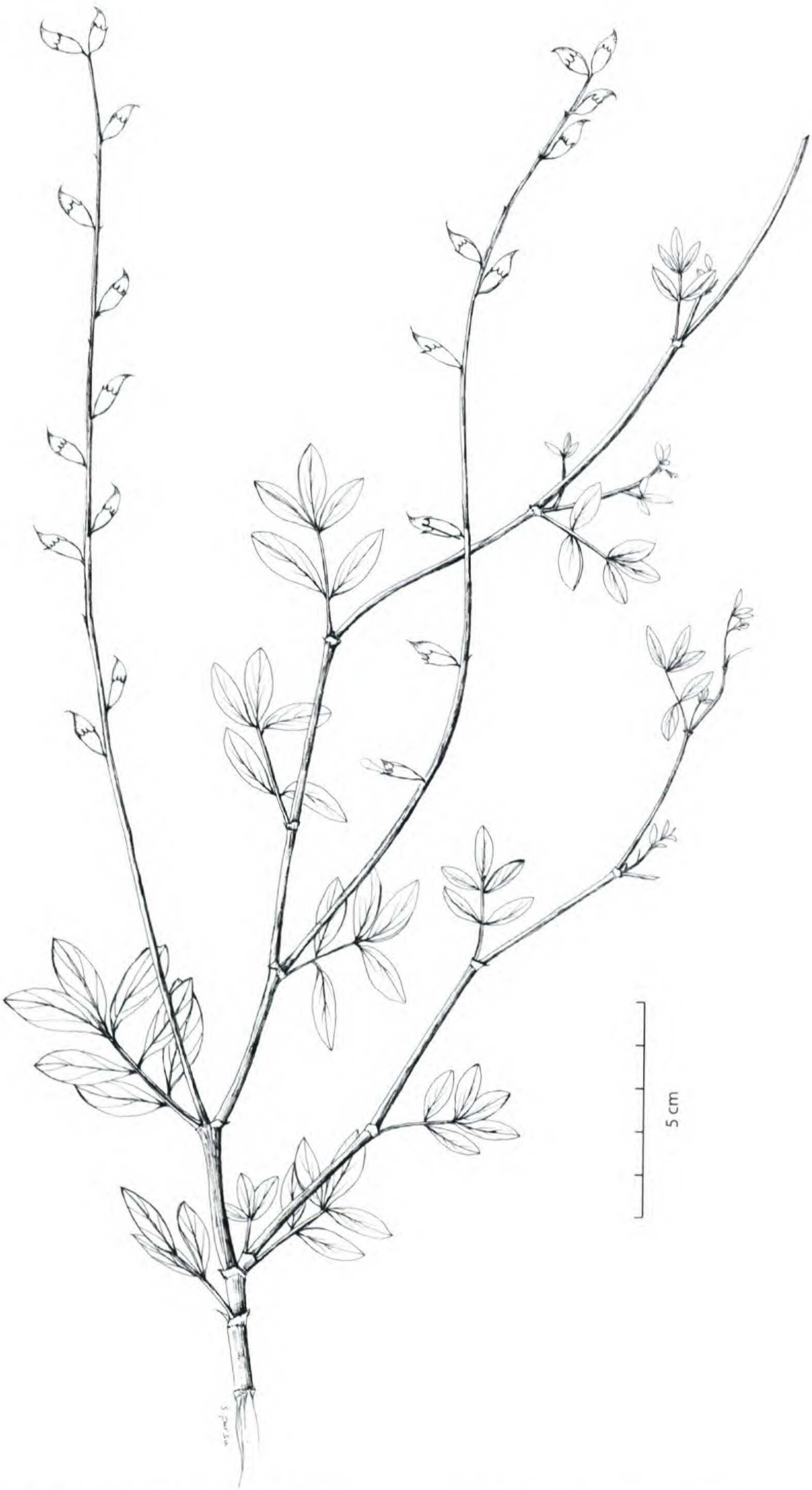

Figure 1. Holotype of *Astragalus joharchii* F. Ghahremaninejad & J. F. Gaskin (after *M. R. Joharchi 37246*, FAR).

0.4–0.5 × 0.25 mm. *Pods* sessile to shortly stipitate (with a stipe ca. 1 mm long), ellipsoid, acute, 11.5–12 × 3 mm in the middle part, terminating in a beak, glabrous, bilocular; *seeds* 2 in each pod, green, smooth, 3–3.2 × 2–2.1 mm.

Phenology. Flowering and fruiting April–May.

Etymology. The specific epithet is in honor of the collector of the specimen, M. R. Joharchi, an Iranian plant taxonomist.

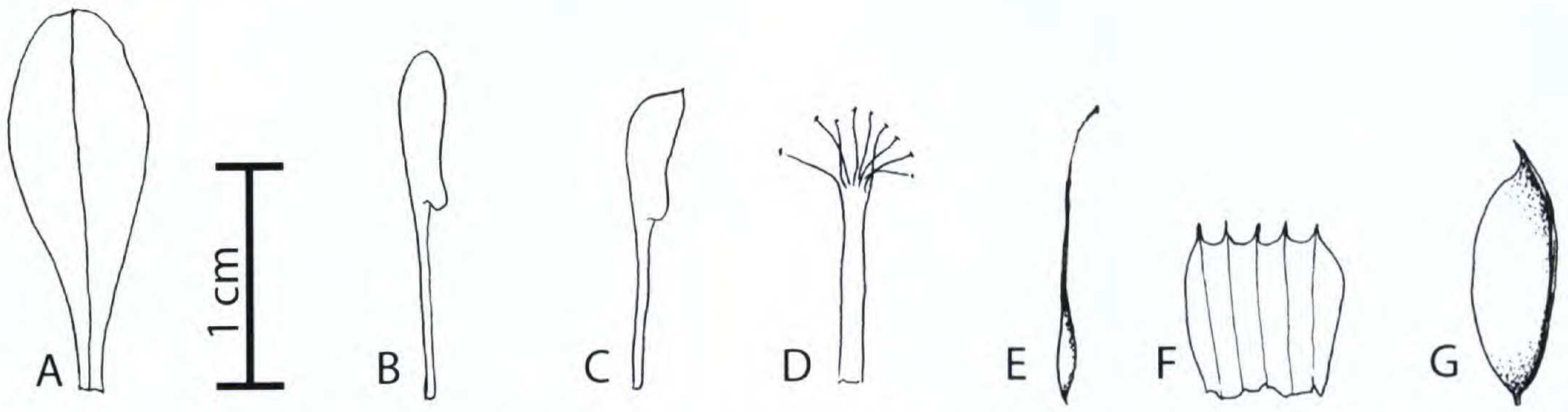

Figure 2. *Astragalus joharchii.* —A. Standard. —B. Wing. —C. Keel. —D. Stamens. —E. Pistil. —F. Calyx. —G. Fruit. After *M. R. Joharchi 37246* (FAR).

Phytogeographic and Taxonomic Remarks

This endemic species has been known only from the type locality. Recently the type specimen was collected in the Khorassan province near the Afghanistan border. However, the authors could not find another specimen of it in any Iranian herbaria. The new species *Astragalus joharchii* is well distinguished from the majority of Iranian species in section *Ammodendron* by the combination of a glabrous and sessile to shortly stipitate pod. Morphologically, the closest relative of this species (due to shared glabrous ovary, glabrous pod, number of leaflets, and peduncle length) is an endemic from Afghanistan: *A. glabellus* (Podlech, 1985). *Astragalus joharchii* differs from *A. glabellus* in having a longer inflorescence (17–25 vs. 1–5 cm), more flowers in each raceme (15 to 19 vs. 3 to 10 flowers), longer (6–25 vs. 4–14 mm) and wider (4–10 vs. 2–4 mm) leaflets, and longer floral parts (calyx 9–9.5 vs. 6 mm and standard 16–17 vs. 14 mm). The majority of the species in this section are desert plants distributed in Middle Asia, Iran (Table 1), and Afghanistan (based on Lock & Simpson, 1991; Yakovlev et al., 1996). In Iran, *Astragalus* sect. *Ammodendron* species are concentrated in xeric habitats of central, southern, and eastern parts of the country, and are distributed between 40 and 3400 m altitude (Ghahremaninejad, 2004a).

Table 1. List of Iranian species of *Astragalus* sect. *Ammondendron* (based on Lock & Simpson, 1991; Podlech & Zarre, 2003; Ghahremaninejad, 2004b). An asterisk indicates that the species is endemic to Iran.

1. *A. acutifolius* Bunge
2. *A. ahmed-adlii* Bornmüller & Gauba*
3. *A. ammodendroides* Bornmüller*
4. *A. bazarganii* Podlech & Zarre*
5. *A. baharensis* F. Ghahremaninejad*
6. *A. biarjmandicus* Podlech & Zarre*
7. *A. brevipetiolatus* Širjaev & Rechinger f.*
8. *A. darrehbidensis* Podlech & Zarre*
9. *A. erwinii-gaubae* Širjaev & Rechinger f.*
10. *A. joharchii* F. Ghahremaninejad & J. F. Gaskin*
11. *A. kavirensis* Freitag*
12. *A. macrobotrys* Bunge*
13. *A. nowroozii* Podlech & Zarre*
14. *A. oligophyllus* Boissier
15. *A. podolobus* Boissier
16. *A. squarosus* Bunge
17. *A. strictissimus* Podlech & Zarre*
18. *A. tarumensis* Širjaev & Rechinger f.*
19. *A. tenuiramosus* Podlech & Zarre*

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